IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#8
Washington
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Applicant: Rodney M. Richards
Theodore Jones

Serial No.: 220,108

Filed: June 24, 1988

For: Method and Reagents for Detecting Nucleic Acid Sequences

Group Art Unit: 182

Examiner: Wagner

INFORMATION DISCLOSURE STATEMENT

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Dear Sir:

Applicants submit the following information in compliance with their duty to disclose information which is material to the examination of the above-entitled patent application. Applicants are citing herein those references mentioned in the present application, in addition to certain other references of which Applicants have become aware.

U.S. Patent No. 4,293,652 discloses a recombinant method for amplifying, or cloning, a nucleic acid, wherein the target nucleic acid is inserted into a vector.

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this paper (along with any paper referred to being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Commissioner of Patents and Trademarks, Washington, D.C. 20231

Charlotte Frumkin
(Typed or print name of person mailing paper)

Date: 10/27/89

Charlotte Frumkin
(Signature of person mailing paper)

U.S. Patent Nos. 4,683,195 and 4,683,202 disclose a method for amplifying the amount of target nucleic acid from a test sample using a technique known as polymerase chain reaction (PCR). Two oligonucleotide primers are used to flank the nucleic acid segment to be amplified, with extension products of the annealed primers being formed to make complementary copies of the target. The extension products are then separated from the target and the process repeated (cycled), with primers annealing to the extension products in subsequent cycles to result in the exponential accumulation of amplfied product.

U.S. Patent No. 4,751,177 discloses a "sandwich" type of hybridization assay for the isolation and quantitative detection of a selected single-stranded target nucleic acid sequence from solution. The assay utilizes a "mediator" nucleic acid sequence, different portions of which are complementary to a portion of an immobilized nucleic acid sequence and to the single-stranded target nucleic acid sequence, respectively. The mediator nucleic acid sequence attaches the target to the immobilized sequence, while a third (probe) sequence attaches to the other end of the "sandwich".

European Patent Application No. 246,864 discloses a method for discriminating between a nucleic acid sequences and a potential variant nucleic acid sequence using two nucleic acid hybridization probes. The two probes may hybridize to adjacent segments of a target base sequence, such that the potential mismatch in the target sequence lies either between the probes or at the terminal end of one of the probes which is contigous with the other probe.

European Patent Application No. 320,308, although published after the filing date of the present application, and therefore not prior art, claims priority from U.S. Patent Application Serial No. 131,936, filed December 11, 1987, and is cited as of interest. Backman et al disclose an amplification system wherein multiple probes are ligated to form "reorganized fused probes". Backman et al teach that the use of four probes in such a system is "sufficient and preferred".

Besmer et al, J. Molecular Biology, 72, 503-522 (1972) disclose the ligation of two co-annealed oligonucleotides on a target strand, demonstrating that the co-annealed nucleotides occupy adjacent sites on the target.

Respectfully submitted,

Date: October 27, 1989

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